

Office Memorandum • UNITED STATES GOVERNMENT

TO : [REDACTED]
Through: [REDACTED]
FROM : [REDACTED]

DATE: 21 February 1951

SUBJECT: Hypospray, ampules, etc. (Bluebird)

Reference is made to our recent conversations regarding the hypospray instruments and various types of ampules that can be made for use in the instrument.

The "B" team has given considerable thought to the possible uses of hypospray and all concerned are agreed that this instrument (or variations thereof) would be of extreme value in certain operations. There are, however, many questions that arise and require answers in this connection. The most obvious are set out below:

1. The regular commercial HYPOSPRAY discharges a 1cc ampule. Is this the only size hypospray made or developed commercially or experimentally? A 3cc or even a 2cc, if workable and clinically sound, would, if it is believed, be of greater use to us than a 1cc instrument. Full details are needed including all known tests.
2. Very little is known about the various types of ampules used in or made for the hypospray (commercial or experimental). We would like to obtain all available information in this connection.
3. Also in connection with (2) above, we would like to know what concentrations of liquids and solids, types of liquids and solids have been tested in the hypospray and with what results.
4. We would like to know if the standard 1cc hypospray is made or has been made in any other form, shape, size, or weight. The standard hypospray is quite heavy and a lighter, more easily carried model would be of great help. Also, has an instrument been built having a double barrel and capable of firing two ampules simultaneously?
5. The hypospray was invented or developed by James M. McKibbin an officer of the R. P. Scherer Corp. of Detroit, Michigan. Both McKibbin and R. P. Scherer are highly regarded and reputable individuals according to ITSS confidential information. We would like to know, if possible, what experimental work those individuals (or the R. P. Scherer Corp.) have done on the hypospray or similar instruments and the ampules that they have used and tested. We would like to know if the R. P. Scherer Corp. is still making ampules for the hypospray, although the rights to the instrument have apparently been sold to the E. R. Squibb Company, Brooklyn, New York.

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6. Since all rights to the hypospray are now owned by the E. R. Squibb Company, Brooklyn, New York, we would like to know if Squibb is manufacturing the hypospray now; what, if any testing or new developments they have made on the hypospray; are they making their own ampules and if so what sizes, types, solutions, contents they are using. We should also like to know how we can make immediate purchase of hypospray instruments and ampules (see following).
7. We would also like to know the names of individuals (doctors, technicians, experimenters) who have worked on or used the hypospray and what tests (and results) have been made by these persons. Further, if any institutions, hospitals, clinics, etc., have made extensive use of the instrument we should like to know their names.

Based on "B" experience and research to date, this office would like to secure immediately via direct purchase or by contract arrangement six (6) of the standard commercial HYPOSPRAY instruments. In addition, arrangements should be made for the manufacture and purchase of the following ampules for the above instrument:

300 sodium amytal (one grain each)
100 caffeine sodium-benzoate (two grains each)
100 caffeine sodium (seven and one-half grains each)

It is believed that the Squibb Company would be the only present source of hypospray instruments, however, ampules can probably be purchased from both Squibb and R. P. Scherer Corp., at Detroit, Michigan.

In the event, it is felt that these items would be difficult or slow to obtain through normal Agency channels, this office believes that they could be purchased ~~(see following)~~ directly.

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Subject: HYPOSPRAY

Additional information concerning the use of the hypospray instrument is requested as follows:

1. The hypospray instrument, as presently designed, discharges a 1cc ampule. Has any experimentation been carried out or has an instrument been developed which would permit the use of a 2cc ampule or even a 3cc ampule?
2. The present hypospray instrument is quite heavy in weight. Have other models been developed using lighter metals which permit an easier handling and carrying of the instrument? Also has an instrument been developed utilizing a double barrel and capable of firing two ampules simultaneously?
3. Are there available any reports on the use of the hypospray with results of research on the effects of various drugs and serums utilized in the hypospray?

Any information on the above would be appreciated.

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Subject: Hypospray

Request that arrangements be made for procurement of the following supply of ampules for use in a hypospray instrument:

- 300 ampules sodium amytal (one grain each)
- 100 ampules caffeine sodium-benzoate (two grains each)
- 100 ampules caffeine sodium (seven and one-half grains each).

Army Perfecting 'Gun' For Painless Inoculations

Advantages of New Method Obvious in Wartime

By Thomas R. Henry

A "shot" gun by which large groups of people can be inoculated quickly and painlessly is being perfected at the Army Medical Service Graduate School here.

By means of it vaccines, antivenoms or morphine are shot against the skin under high pressure.

Its advantages would be obvious with any threat of biological warfare when it might be necessary to inoculate an entire population. It also, Army doctors believe, would serve well in the case of troops ordered suddenly overseas.

With a hypodermic needle it is necessary to fill and sterilize after each injection, a time-consuming process. Use of the needle always is somewhat painful and many persons have a great psychological dread of it.

The new method requires no needle. It is absolutely painless. The sensation is no different from that caused by a water spray under high pressure.

Method Avoids Infection.

Other important advantages pointed out are:

With hypodermic needles there is some danger of transmitting infection, such as syphilis, malaria or yellow jaundice. This is especially true when large numbers must be treated in a hurry.

Since there is no penetration of the skin, except by the vaccine itself, no sterilization is needed. Practically no experience or training is necessary. Use of the needle is a job for a doctor or trained technician. This would be very important in such an emergency as a mass bombing.

When produced in quantities, jet-injection apparatus will be relatively inexpensive.

There is occasional failure of the jet to penetrate the skin of persons with particularly thick hides or with thick shavers. A control that will enable operator to vary the pressure according to the individual is being worked on.

The method is worthless for any but injections under the skin. It cannot be used for injections into the blood.

Jet injections have been in use, but on a very limited scale, for some years. The Army's apparatus is a great improvement over any used in the past. Discovery of the method is believed to have come from observations of automobile oil being forced through the skin of mechanics. It also was noted that fine jets of oil at high velocity, as from a leaking hydraulic line, could penetrate human skin and leave little or no mark.

The apparatus, it is emphasized, still is in the experimental stage and will not be used for some time.

A new antibiotic active against amoebae in dilutions as great as one in 130 million has been reported to the American Association for the Advancement of Science.

It is extracted from a species of mould, like penicillin. The new substance, described by Dr. Max C. McCowen and his associates of the Lilly Research Laboratories at Indianapolis, appears to be the most potent agent yet found against the microscopic animals responsible for amoebic dysentery and many other maladies.

New Amoebic Antibiotic.

The new antibiotic, called fumagillin, seems to be specific against amoebae. Tests show that it apparently has little effect against other micro-organisms such as bacteria, fungi or viruses. It is the first substance yet found which seems to be specific against amoebae. Even in crude form it is effective. In laboratory tests with animals, in dilutions as high as one part to 16 million.

The principal tests to date have been with experimental infections with rabbits. It was found, according to Dr. McCowen and his associates, that the animals could be completely cured by the microscopic organism in four divided doses administered over two days. Less than 100 milligrams per kilogram of body weight was administered. Quite similar results have been brought about with young rats.

Tests with humans, where amoebic diseases such as dysentery are likely to be very serious, await further experiments with animals. Maladies caused by these organisms are likely to be extremely serious and sometimes tend to run in epidemics. The bacteriologists emphasize that their report is entirely preliminary, but they are so much inclined to believe that fumagillin would have detrimental effects on humans.

They have demonstrated that it has no effect on influenza in mice.